



Tenax Spa CRYSTAL

Revision nr.1
Dated 4/1/2019
First compilation
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Safety Data Sheet

According to Canadian HPR - WHMIS 2015

1. Identification

1.1. Product identifier

Product name **CRYSTAL**
Chemical name and synonym **Polyester resin in solution**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use **Polyester glue for marble.**

| Identified Uses | Industrial | Professional | Consumer |
|---|------------|--------------|----------|
| ADHESIVE SYSTEM/TREATMENT FOR STONE SECTOR | - | ✓ | - |

1.3. Details of the supplier of the safety data sheet

Name **Tenax Spa**
Full address **Via I Maggio, 226**
District and Country **37020 Volargne (VR)
Italy**
Tel. **+39 045 6887593**
Fax **+39 045 6862456**

e-mail address of the competent person responsible for the Safety Data Sheet **msds@tenax.it**

Product distribution by: **Tenax Usa**
7606 Whitehall Executive Center Drive Suite 400, 28273 Charlotte NC, US
Tel. 001 7045831173 - Fax 001 7045833166
info@tenaxusa.com

1.4. Emergency telephone number

For urgent inquiries refer to **24hrs:**

Manitoba Poison Centre 1-855-7POISON (1-855-776-4766)

BC Drug and Poison Information Centre (DPIC)
1-800-567-8911 (toll free in BC)
(604) 682-5050 (Greater Vancouver or outside of BC)

Centre antipoison du Québec 1-800-463-5060

IWK Regional Poison Centre
1-800-565-8161 (within NS and PEI only)
(902) 470-8161 (Halifax or outside NS, PEI)

Poison And Drug Information Services (PADIS)
1-800-332-1414 (toll free in Alberta, Northwest Territories)
1-866-454-1212 (toll free in Saskatchewan)
(403) 944-1414 (in Calgary, outside of Alberta, or VOIP users)

Ontario Poison Centre 1-800-268-9017

2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in Canada's Hazardous Products Regulations (HPR) (WHMIS 2015). The product thus requires a safety datasheet.
Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

2. Hazards identification ... / >>

Classification and Hazard Statement

Flammable liquid, category 3

Reproductive toxicity, category 2

Specific target organ toxicity - repeated exposure, category 1

Eye irritation, category 2

Skin irritation, category 2

Flammable liquid and vapour.

Suspected of damaging fertility or the unborn child.

Causes damage to organs through prolonged or repeated exposure.

Causes serious eye irritation.

Causes skin irritation.

Hazard pictograms:



Signal words: Danger

Hazard statements:

H226 Flammable liquid and vapour.

H361 Suspected of damaging fertility or the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

H319 Causes serious eye irritation.

H315 Causes skin irritation.

Precautionary statements:

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260 Do not breathe dust / fume / gas / mist / vapours / spray.

P202 Do not handle until all safety precautions have been read and understood.

P242 Use non-sparking tools.

P201 Obtain special instructions before use.

P233 Keep container tightly closed.

P280 Wear protective gloves/ protective clothing / eye protection / face protection.

P270 Do not eat, drink or smoke when using this product.

P264 Wash the hands thoroughly after handling.

P240 Ground and bond container and receiving equipment.

P243 Take action to prevent static discharges.

P241 Use explosion-proof [electrical / ventilating / lighting / . . .] equipment.

Response:

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P308+P313 IF exposed or concerned: Get medical advice / attention.

P337+P313 If eye irritation persists: Get medical advice / attention.

P362+P364 Take off contaminated clothing and wash it before reuse.

P370+P378 In case of fire: use CO₂, sand, powder to extinguish.

Storage:

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal:

P501 Dispose of contents / container according to applicable law.

2.2. Other hazards

Additional hazards

Information not available

3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification x = Conc. % (w/w) Classification:

STYRENE

CAS 100-42-5 31.09 **Flammable liquid, category 3 H226, Reproductive toxicity, category 2 H361,**



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3. Composition/information on ingredients ... />>

Acute toxicity, category 4 H332, Specific target organ toxicity - repeated exposure, category 1 H372, Eye irritation, category 2 H319, Skin irritation, category 2 H315

The full wording of hazard (H) phrases is given in section 16 of the sheet.

4. First-aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.

SKIN: Remove contaminated clothing. Wash immediately with plenty of water. If irritation persists, get medical advice/attention. Wash contaminated clothing before using it again.

INHALATION: Remove to open air. In the event of breathing difficulties, get medical advice/attention immediately.

INGESTION: Get medical advice/attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person, unless authorised by a doctor.

4.2. Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.

4.3. Indication of any immediate medical attention and special treatment needed

Information not available

5. Fire-fighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT

Extinguishing substances are: carbon dioxide, foam, chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.

UNSUITABLE EXTINGUISHING EQUIPMENT

Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Excess pressure may form in containers exposed to fire at a risk of explosion. Do not breathe combustion products.

5.3. Advice for firefighters

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.



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6. Accidental release measures ... / >>

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

7. Handling and storage

7.1. Precautions for safe handling

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store in a well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

TLV-ACGIH ACGIH 2018

STYRENE

Threshold Limit Value

| Type | Country | TWA/8h | | STEL/15min | |
|-----------|---------|--------|-----|------------|---------|
| | | mg/m3 | ppm | mg/m3 | ppm |
| TLV-ACGIH | - | 85 | 20 | 170 | 40 |
| ONT | CAN | | 35 | | 100 |
| OSHA | USA | | 100 | | 200 (C) |

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

TLV of solvent mixture: 85 mg/m3

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Personal protective equipment must comply with current regulations.

HAND PROTECTION

Protect hands with category III work gloves (OSHA 29 CFR 1910.138).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear. Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (OSHA 29 CFR 1910.133, CSA Standard CAN/CSA-Z94.3-92).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose class must be chosen according to the limit of use concentration (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134, CSA Standard Z94.4-02). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus or external air-intake breathing apparatus. For a correct choice of



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8. Exposure controls/personal protection ... / >>

respiratory protection device, see standard NIOSH 42 CFR 84, OSHA 29 CFR 1910.134, CSA Standard Z94.4-02.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Properties | Value | Information |
|--|--------------------|-------------|
| Appearance | paste | |
| Colour | opalescent | |
| Odour | typical | |
| Odour threshold | Not available | |
| pH | Not available | |
| Melting point / freezing point | Not available | |
| Initial boiling point | Not available | |
| Boiling range | Not available | |
| Flash point | 32 °C | (89,6 °F) |
| Evaporation Rate | Not available | |
| Flammability of solids and gases | Not available | |
| Lower inflammability limit | Not available | |
| Upper inflammability limit | Not available | |
| Lower explosive limit | Not available | |
| Upper explosive limit | Not available | |
| Vapour pressure | Not available | |
| Vapour density | Not available | |
| Relative density | 1.1 | |
| Solubility | insoluble in water | |
| Partition coefficient: n-octanol/water | Not available | |
| Auto-ignition temperature | Not available | |
| Decomposition temperature | Not available | |
| Viscosity | Not available | |
| Explosive properties | Not available | |
| Oxidising properties | Not available | |

9.2. Other information

Information not available

10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

STYRENE

Polymerises at temperatures above 65°C/149°F. Fire hazard. Possibility of explosion.

Added with an inhibitor that requires a small amount of dissolved oxygen at temperatures < 25°C/77°F.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

The vapours may also form explosive mixtures with the air.

STYRENE

May react dangerously with: peroxides, strong acids. May polymerise on contact with: aluminium trichloride, azobisisobutyronitrile, dibenzoyl peroxide, sodium. Risk of explosion on contact with: butyllithium, chlorosulphuric acid, di-tert-butyl peroxide, oxidising substances, oxygen.

10.4. Conditions to avoid

Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.



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10. Stability and reactivity ... / >>

STYRENE

Avoid contact with: oxidising substances, copper, strong acids.

10.5. Incompatible materials

STYRENE

Incompatible materials: plastic materials.

10.6. Hazardous decomposition products

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

STYRENE

WORKERS: inhalation; contact with the skin.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

STYRENE

The acute toxicity by inhalation at 1000 ppm affects the central nervous system with headache and dizziness, lack of coordination; irritation of the eye and respiratory tract mucous membranes occurs at 500 ppm. Chronic exposure causes depression of the central and peripheral nervous system with loss of memory, headache and drowsiness starting at 20 ppm; digestive disorders with nausea and loss of appetite; irritation of the respiratory tract with chronic bronchitis; dermatosis. Repeated exposure, at low doses of inhaled substance, causes irreversible changes to hearing and may cause changes in colour vision. No certain data is available on the reversibility of the visual impairment. Repeated skin exposure causes irritation. The substance degrades the skin, which can cause dryness and cracking.

Interactive effects

STYRENE

The metabolism of the substance is inhibited by ethanol. When styrene is photo-oxidised with ozone and nitrogen dioxide, as in the formation of smog, products highly irritating for the human eye may ensue.

ACUTE TOXICITY

STYRENE

| | |
|-------------------|------------------|
| LD50 (Oral) | 5000 mg/kg Rat |
| LD50 (Dermal) | > 2000 mg/kg Rat |
| LC50 (Inhalation) | 11.8 mg/l/4h Rat |

SKIN CORROSION / IRRITATION

Causes skin irritation

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class



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11. Toxicological information ... / >>

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

Carcinogenicity Assessment:

100-42-5 STYRENE
ACGIH:: A4
IARC:2B
NTP: Reasonably Anticipated

STYRENE

Classified in Group 2B (possible human carcinogen) by the International Agency for Research on Cancer (IARC) - (IARC, 2002).
Classified as "probable carcinogen" by the US National Toxicology Program (NTP) - (US DHHS, 2014).

REPRODUCTIVE TOXICITY

Suspected of damaging fertility or the unborn child

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Causes damage to organs

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

STYRENE

| | |
|-----------------------------------|--|
| LC50 - for Fish | 4.02 mg/l/96h Pimephales promelas |
| EC50 - for Crustacea | 4.7 mg/l/48h Daphnia magna |
| EC50 - for Algae / Aquatic Plants | 4.9 mg/l/72h Pseudokirchneriella subcapitata |
| EC10 for Algae / Aquatic Plants | 0.28 mg/l/72h |

12.2. Persistence and degradability

STYRENE

| | |
|---------------------|----------|
| Solubility in water | 320 mg/l |
| Rapidly degradable | |

12.3. Bioaccumulative potential

STYRENE

| | |
|--|------|
| Partition coefficient: n-octanol/water | 2.96 |
| BCF | 74 |

12.4. Mobility in soil



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12. Ecological information ... / >>

STYRENE

Partition coefficient: soil/water 2.55

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects

Information not available

13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA: 1866

The product, if packaged in packages of less than 450 litres, is not subject to ADR regulations as stated in 2.2.3.1.5.

The product, if packaged in packages of less than 30 litres, is not subject to obligations relating to marking, labelling and package testing in accordance with 2.3.2.5 of the IMDG CODE.

14.2. UN proper shipping name

ADR / RID: RESIN SOLUTION
IMDG: RESIN SOLUTION
IATA: RESIN SOLUTION

14.3. Transport hazard class(es)

ADR / RID: Class: 3 Label: 3



IMDG: Class: 3 Label: 3



IATA: Class: 3 Label: 3



14.4. Packing group

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards

ADR / RID: NO
IMDG: NO
IATA: NO



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14. Transport information ... / >>

14.6. Special precautions for user

| | | | |
|------------|---|---|--|
| ADR / RID: | HIN - Kemler: 30 Special Provision: - | Limited Quantities: 5 L | Tunnel restriction code: (D/E) |
| IMDG: | EMS: F-E, S-E | Limited Quantities: 5 L | |
| IATA: | Cargo: Pass.: Special Instructions: | Maximum quantity: 220 L Maximum quantity: 60 L A3 | Packaging instructions: 366 Packaging instructions: 355 |

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Substances subject to the Rotterdam Convention:
None

Canadian Regulatory Information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR).

Safety Data Sheet according to WHMIS 2015.

16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

| | |
|-------------|---|
| H226 | Flammable liquid and vapour. |
| H361 | Suspected of damaging fertility or the unborn child. |
| H332 | Harmful if inhaled. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H319 | Causes serious eye irritation. |
| H315 | Causes skin irritation. |

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CLP: EC Regulation 1272/2008
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PEL: Predicted exposure level
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- WHMIS: Workplace Hazardous Materials Information System.

GENERAL BIBLIOGRAPHY:

- GHS rev. 5
- The Merck Index. 10th Edition
- Handling Chemical Safety
- Niosh - Registry of Toxic Effects of Chemical Substances
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology



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- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

- Hazard Products Regulation (HPR)
- WHMIS 2015
- ONTARIO R.R.O. 1990, Regulation 883 (version July 2016)
- IARC website
- NTP. 2011. Report on Carcinogens, 12th Edition.
- OSHA website
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.